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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------|------------------|
| 10/602,950 | 06/24/2003 | Tomoki Yoshihama | Aikawa Case 30 | 1039 |
| 23474 | 7590 | 12/08/2004 | EXAMINER | |
| FLYNN THIEL BOUTELL & TANIS, P.C. 2026 RAMBLING ROAD KALAMAZOO, MI 49008-1699 | | | ESTREMSKY, SHERRY LYNN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3681 | |

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

| | | | |
|-----------------|--------------------|--------------|------------------|
| Application No. | 10/602,950 | Applicant(s) | YOSHIHAMA ET AL. |
| Examiner | Sherry L Estremsky | Art Unit | 3681 |
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 13 September 2004.
2a) This action is FINAL. 2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-4 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 1,2 and 4 is/are rejected.
7) Claim(s) 3 is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
10) The drawing(s) filed on 13 September 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

The receipt of the amendment dated September 13, 2004 of the application 10/602,950, including amendments to the specification, drawings, and claims, is acknowledged.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The replacement drawing sheet was received on September 16, 2004. This drawing is acceptable. No further drawing submission is required.

Specification

3. The substitute specification submitted September 13, 2004 has been entered.
4. The abstract of the disclosure is objected to because it is longer than 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkubo, U. S. Patent 4,873,892 in view of Kanamaru et al., U. S. Patent 5,584,202.

Ohkubo discloses a differential gearing unit 15 (column 1, lines 41- 42; column 3, lines 54-55) for a vehicle including an internal gear 25, a sun gear 23 disposed inside the internal gear concentrically therewith, planet gears 20 disposed between the internal gear 25 and the sun gear 23 in meshing engagement therewith for transmitting torques, and a planetary carrier 16 for carrying the planet gears 20 so as to be capable of revolving around an axis of the sun gear 23 and on their own axes. The internal gear includes internal gear teeth 25 formed on the inner peripheral surface and a spline groove formed on the outer peripheral surface onto which dog clutch input part 31 is splined (column 2, lines 56-60 and column 3, lines 1-2). As shown in figure 1, the internal gear teeth and the spline groove are axially separated from each other.
(claim 1)

The spline groove on the outer peripheral surface of the internal gear is effective to transmit a input from the cylindrical portion 27 of the internal gear to the input part 31 of the dog clutch.

(claim 2)

A drive from an engine (generally understood to be the power source of the four-wheel drive vehicles such as those listed in column 1, lines 9-12) is input to the planetary carrier 16 (column 2, lines 42-45), the sun gear 23 is connected to shaft 5, which is in turn connected to the front wheels, and the internal gear is connected to shaft 6, which is in turn connected to the rear wheels (column 2, lines 20-22) of a four-wheel drive vehicle.

(claim 4)

Ohkubo does not disclose that the internal gear is molded by plastic working.

Kanamaru discloses a planetary gear unit including an internal gear 1D, a sun gear 26, planet gears 27 meshing with the internal gear and the sun gear, and a carrier 28 for carrying the planet gears. The internal gear is molded by plastic working (column 1, lines 22-31 and column 4, lines 50-54).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Ohkubo to mold the internal gear by plastic working in view of Kanamaru et al. because the resulting structure is formed easily from a simple shape sheet metal, is thin and light weight, is accurate, and has high strength (column 2, line 58 to column 3, line 3 and column 4, lines 49-53), and since cutting and grinding are not required, the number of steps and cost of manufacturing can be reduced compared to the conventional manufacturing methods (column 5, lines 15-21).

Allowable Subject Matter

7. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent 3,590,660 (Bopp) July 1971 - discloses a planetary gear unit used in conjunction with a differential, including an internal gear having internal gear teeth and axially separated teeth on an external periphery, an axially moveable sun gear, and planet gears carried by a carrier.

U. S. Patent 3,915,031 (Hanson) October 1975 - discloses a differential gearing unit including an internal gear with internal teeth and spline grooves/teeth on an outer periphery axially separated from the internal teeth.

U. S. Patent 6,085,880 (Kuhn et al.) July 2000 - discloses a planetary gear unit including an internal gear with internal teeth and spline grooves (on which ring 8 is splined) on an outer periphery axially separated from the internal teeth.

Response to Arguments

9. Applicant's arguments, see lines 4-10 and the last 6 lines of page 7, filed September 13, 2004, with respect to the rejection(s) of claim(s) 1-4 under 35 USC 102(b) have been fully considered and are persuasive. In particular, plastic working results in specific structural characteristics, and so this limitation should be specifically taught by the prior art applied. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the structure of Ohkubo combined with the teaching of the benefits of forming an internal gear by plastic working given by Kanamaru et al., as applied in the rejections above.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherry L Estremsky whose telephone number is (703) 308-2164. The examiner can normally be reached on Tuesday and Friday from 7:30 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on (703) 308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SHERRY ESTREMSKY
PRIMARY EXAMINER
AV3681 11-30-04